

Superpave Bulletin No. 2

Superpave Mixture Evaluation for Local Agencies

As the transfer of SuperPave. technology to the secondary and urban systems progresses toward the planned complete implementation date of 2002, concerns about the ability to use local materials must be addressed. In order to address these concerns, the Iowa **D.O.T. and many of the** contractor members of the, APAI have agreed to evaluate the current Marshall mixtures for their suitability for use under the SuperPave system.

Limited testing indicates that most currently used Marshall mixtures meet the SuperPave specifications for nonprimary roads. More extensive and comprehensive testing is needed, however, to be certain that SuperPave implementation will not adversely impact local agencies. To achieve this, those local agencies who have concerns about the continued use of local materials need to take advantage of the offer to evaluate their mixtures.

Beginning in June 1999, all secondary road mixtures that were sampled for assurance/verification testing were also tested in the gyratory compactor in the Iowa D.O.T. Central Materials Laboratory. The data from this testing will be reported after the season is complete. Those local agencies who constructed asphalt projects after June of this year will automatically have data available on the mixtures used. The Central Lab will continue this evaluation through next years construction season. Agencies with asphalt projects scheduled for 2000 will benefit from this automatic evaluation. Local agencies which did not have asphalt projects this year and do not have projects planned for 2000 will need to take the initiative to get their mixes evaluated.

Those agencies desiring an evaluation of their typical mixtures should contact their Transportation Center Materials Engineer or a local asphalt contractor for instructions and help in obtaining representative samples of the aggregates to be evaluated: The *local agency, should identify the materials used, in recent years and choose those aggregates for testing that represent what they consider to be one or two typical combinations.

Examination of mix designs used since 1993 should indicate typical sources and gradations. Current aggregate stockpiles at the source may not have the same gradation as was used in past mix designs, but some adjustment is possible during the preparation of a mix for testing. The percent passing the #200 sieve needs to be reasonably close to the original design, however, since it is often difficult to adjust this value and it has a significant effect on the test results.

Samples need to be gathered before the stockpiles freeze solid. The contractors and the TC Labs will perform the testing over the winter as time allows. The data will then be gathered, analyzed and reported as a part of the Implementation Plan, so that all parties can benefit from the information.

The final report will include data on mixture size (Marshall vs. SuperPave), the gyratory compaction characteristics of the mix at two levels, voids comparison, and an estimated asphalt content comparison.

INSTRUCTIONS FOR EVALUATION OF MARSHALL MIXTURES IN THE GYRATORY COMPACTOR

ADDENDUM TO SUPERPAVE BULLETIN NO. 2

The SuperPave implementation plan for local agencies calls for the evaluation of currently used mix designs. The evaluation involves checking the local agencies Marshall mix designs by compacting them in the gyratory compactor to provide the information needed to assure a smooth transition into SuperPave. Both contractor labs and Iowa D.O.T. labs will be involved in the evaluation of Marshall mixtures commonly used on the secondary system. To obtain the greatest benefit from this work, a consistent set of data must be gathered.

The following procedures should be employed:

All mixtures should be compacted at 275 degrees F. and compacted to 104 gyrations. One specimen will be sufficient * to provide data, however the average of two specimens is preferred as called for in the test method.

The following data should be reported from the testing laboratory for each mixture evaluated:.

- 1) A form 955 or similar report showing the sources of the aggregates and the combined gradation.
- 2) A form 956 or similar report showing the Marshall mix design data for the evaluated mixture and the County or City where it was used.
- 3) Gyratory compaction analysis at two different levels: One compaction analysis at 6, 50 and 75 gyrations (Nini, Ndes, Nmax respectively). One compaction analysis at 7, 68 and 104 gyrations. It is not necessary to compact two specimens to obtain the data for the two levels of analysis, all specimens can be compacted to 104 gyrations and the analysis for the 6, 50, 75 gyration level can be done by calculation. The maximum specific gravity used in the analysis may be from testing the evaluation sample or from the daily QC data associated with the sample.
- 4) The height printouts for each specimen from the gyratory compactor and the mass of each specimen.
- 5) If testing plant produced mixture, include any available Marshall QC data for the sample.

Forward all test data to John Hinrichsen in the Central Materials Office when complete.